REMARKS

1. Claims Amendments.

Claim 1 has been amended to even more clearly describe the surface zone as an actual part of the workpiece rather than a separate layer coated onto the workpiece. Support for this amendment can be found throughout the original Specification, such as on page 5, lines 1-9 and page 6, lines 31-35. No new matter has been added.

Claims 2 – 6 have not been amended in this response.

Claims 7 – 11 have been withdrawn without prejudice as being drawn to non-elected claims.

Claims 12 – 15 have not been amended in this response.

2. The Claims Are Not Obvious In View of Umetani '348.

For a claim to be determined obvious (or nonobvious) under 35 USC 103, the claimed material must have been obvious to person of ordinary skill in the art from the prior art. An obviousness determination requires examining (1) the scope of the *prior art*, (2) the *level of skill* in the art, and (3) the *differences* between the prior art and Applicant's invention. *Litton Systems, Inc. v. Honeywell, Inc.,* 117 SCt 1270 (1970). A mere suggestion to further experiment with disclosed principles would not render obvious an invention based on those principles. *Uniroyal, Inc. v. Rudkin-Wiley Corp.*, 19 USPQ2d 1432 (Fed. Cir. 1991). To sustain a rejection under 35 USC 103, the examiner must establish a *prima facie* case of obviousness. MPEP §2142. To establish a *prima facie* case of obviousness, the prior art reference (or references when combined) must teach or suggest all the claim limitations. MPEP §2143.

Applicant's invention is not taught or suggested by Umetani '348. Specifically, Umetani '348 neither teaches nor suggests at least:

- Thermochemically treating a workpiece to create a thermochemically treated surface zone ***within*** the surface region of the workpiece (Claim 1);

- Introducing one or more elements to the surface region (Claim 1);
- Allowing the element(s) to penetrate ***into*** the surface region (Claim 1);
- Creating a thermochemically treated surface zone (Claim 1); and
- Machining the surface zone.

On the contrary, Umetani '348 teaches away from the present invention as Umetani '348 teaches:

- Coating an intermediate layer or coating ***onto*** a workpiece, not forming a zone within a workpiece;
- Machining the intermediate layer, not machining the zone within the workpiece; and
- Coating a protective layer over the intermediate layer.

The prior art must not be given an overly broad reading, but should be read in the context of the patent specifications and *as intended by reference authors. Durling v. Spectrum Furniture Co.,* 40 USPQ2d 1788 (Fed Cir 1996) (Federal Circuit held that district court erred by giving a "too broad an interpretation" of claims in a sofa patent to invalidate another on the nonobviousness standard). Thus, based on the principles espoused by the courts, the combination of steps and features contained in the claims of the present patent application are neither disclosed nor claimed in the cited patents, and therefore are not obviated by the prior art.

Briefly, the present invention treats a workpiece to create a thermochemically treated surface zone, then machines the surface zone. No additional materials are layered onto the workpiece. The surface zone is a part of the original material of the workpiece that has been thermochemically treated. The thermochemical treatment introduces some of the Period 1 and 2, Group 13-16 elements into the workpiece. In this context, as stated in the patent application on page 3, lines 14-17, the term "surface zone" of the workpiece is to be understood as meaning the entire region of the workpiece which is close to the surface and can be influenced by the thermochemical processes. The surface zone is not outside of the workpiece, not is it a layer placed on the workpiece – it is a part of the workpiece itself.

The Umetani '348 invention, on the contrary, takes a base material, layers an intermediate material onto the base material, then layers a surface protective material on the intermediate layer. The base material is roughly machined into a die and the intermediate layer coated onto the die and then finely machined. The surface protective layer then is coated onto the intermediate layer. The intermediate layer comprises some of the Period 4 and 6, Group 10-11 elements, as well as Ni-P and Ni-B alloys.

The Examiner appears to be taking the position that, in effect, "a layer is a layer" and to be equating the Umetani '348 Ni-P or Ni-B ***coated layer*** to the present invention's allowing one or more element(s) to penetrate ***into a surface region***. More specifically, the Examiner is alleging that the present invention's surface zone and the Umetani '348 intermediate layer are functionally equivalent simply because they modify the workpiece surface and because both introduce use a Ni-P or Ni-B compound. However, contrary to the Examiner's allegations, not only are the layers different in composition, they are different in formation.

Umetani '348 teaches what can be roughly described as a non-invasive treatment. A workpiece is machined to form a desired surface configuration, an intermediate coating is layered onto the surface, the coating is more finely machined, and a protective coating is layered onto the intermediate coating. The present invention teaches what can be roughly described as an invasive treatment. A workpiece having a desired surface configuration is thermochemically treated such that one or more elements actually penetrate into the workpiece and then the workpiece is more finely machined. This is both chemically and mechanically different from Umetani '348 - chemically because of the coating versus penetrating distinction and mechanically because of the machining the layer versus machining the penetrated region distinction. Coating a substrate (placing a layer on top of a substrate) is a very different process than penetrating (diffusing or entering into a substrate), resulting in very different properties.

In summary, both the mechanism for creating the hardened feature of each invention (a region of the actual workpiece in the present invention and a coating in Umetani '348) and for creating the workpiece surface (machining the actual workpiece

in the present invention and machining the coating in Umetani '348) are patentably distinct from each other. More specifically, Umetani '348 neither teaches nor suggests the mechanisms disclosed in the present patent application and claimed in Claim 1 of the present patent application.

As the cited patents neither disclose nor fairly teach the combination of elements of the present invention as presently claimed, the rejection of the claims under 35 USC 103(a) should be withdrawn.

CONCLUSION

Applicant submits that the patent application is in condition for allowance and requests such action.

If the examiner has any concerns that can be addressed over the telephone, please have the examiner contact the below-signed patent lawyer of record to expedite the prosecution of the patent application.

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